

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Claim 6 is requested to be cancelled without prejudice or disclaimer. Claims 1, 5, 7 and 10 are currently being amended without prejudice or disclaimer. Support for the amendments may be found in Paragraph [0052] of the Specification and Figure 3. No new matter is added.

After amending the claims as set forth above, claims 1-5 and 7-13 are now pending in this application.

I. Drawings

The drawings are objected to under 37 CFR § 1.83(a) for not showing some features recited in claim 6.

Applicant respectfully submits that the drawing objection is now moot in view of the cancellation of claim 6.

II. Claim Rejections Under 35 U.S.C. § 112

Claims 5-6 are rejected under 35 U.S.C. § 112, second paragraph.

Claim 5 is amended to recite “a last stage vacuum pump of said at least one-stage vacuum pump,” without prejudice or disclaimer. Claim 6 is cancelled without prejudice or disclaimer.

Accordingly, the section 112 rejections are now moot.

III. Claim Rejections Under 35 U.S.C. §§ 102 & 103

Claims 1-13 are rejected under 35 U.S.C. §§ 102 and/or 103 over references including Gebele (US 5,228,838), Akutsu (JP2002039061A), Conrad (US 7,033,142), Smith (US 5,925,167), Maruyama (JP09321021) and Puech (US 6,644,931). Applicant respectfully traverses for the following reasons.

A. Claim Rejections Under 35 U.S.C. § 102 Over Gebele Should Be Withdrawn

Claims 1 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Gebele.

Claim 1 recites “a compressor connected to a discharge port of a last-stage vacuum pump of said at least one-stage vacuum pump without divergence.” Applicant respectfully submits that in order to make the above rejection, the Office Action erroneously equates Item 11 shown in Figure 1 of Gebele to the compressor recited in claim 1. Gebele teaches that Item 11 is a forepump unit (*see* Gebele Column 3, Lines 58-59). It, however, fails to teach that such a forepump unit 11 can be a compressor, in contrast what is alleged in the Office Action (*see* Office Action, Page 4, Lines 15-17).

If the Examiner continues to rely on Gebele to reject the claims. Applicant hereby respectfully requests the Examiner to provide adequate evidence to support the finding of the above traversed factual assertion. MPEP § 2144.03(C).

Claim 10 recite analogous features, and thus is patentable for at least the same reasons explained above.

Applicant respectfully requests withdrawal of the section 102 rejections over Gebele for the above reasons.

B. Claim Rejections Under 35 U.S.C. § 102 Over Akutsu Should Be Withdrawn

Claims 1-3, 10-11 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Akutsu.

As noted above, claim 1 recites “a compressor connected to a discharge port of a last-stage vacuum pump of said at least one-stage vacuum pump without divergence.” Applicant respectfully submits that in order to make the above rejection, the Office Action erroneously equates Item 19 shown in Drawing 4 of Akutsu to the compressor recited in claim 1. Akutsu teaches that Items 19, 20 and 21 are all rough vacuum pumps, such as screw pumps (*see* Akutsu, Paragraphs [0034]-[0035]). It, however, fails to teach that such a rough vacuum pump 19 can be a compressor, in contrast to what is asserted in the Office Action (*see* Office Action, Page 5, Lines 15-16).

If the Examiner continues to rely on Gebele to make the rejections, Applicant hereby respectfully requests the Examiner to provide adequate evidence to support the finding of the above traversed factual assertion MPEP § 2144.03(C).

Claim 10 and the dependent claims 2-3, 11 and 13 recite analogous features, and thus are patentable for at least the same reasons explained above.

Applicant respectfully requests withdrawal of the section 102 rejections over Akutsu for the above reasons.

C. Claim Rejections Under 35 U.S.C. § 102 Over Conrad Should Be Withdrawn

Claims 7-8 are rejected under 35 U.S.C. §102(b) as being anticipated by Conrad.

Claim 7 recites “a compressor connected to said third vacuum pump without divergence.” Applicant respectfully submits that in order to make the above rejection, the Office Action erroneously equates Item 9 of Conrad to the compressor recited in claim 7. Conrad teaches that Items 8 and 9 are both fore-vacuum pumps (*see* Conrad, Column 2, Lines 55-59). It, however, fails to teach that such a fore-vacuum pump 9 can be a compressor, in contrast to what is asserted in the Office Action (*see* Office Action, Page 6, Line 22). If the Examiner continues to rely on Gebele to make the rejections, Applicant hereby respectfully requests the Examiner to provide adequate evidence to support the finding of the above traversed factual assertion. MPEP § 2144.03(C).

Claim 8 depends from claim 7, and thus is patentable for at least the same reasons explained above.

Applicant respectfully requests withdrawal of the section 102 rejections over Conrad for the above reasons.

D. Claim Rejections Under 35 U.S.C. §§ 102 & 103 Over Smith Should Be Withdrawn

Claims 5 is rejected under 35 U.S.C. §102(b) as being anticipated by Smith. Claims 5-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith. Applicant respectfully traverses.

Claim 5 recites “a gas recovery apparatus configured to recover a gas discharged from a last-stage vacuum pump of said vacuum pumps for re-use of said gas.” In order to made the rejections, the Office Action erroneously equates Item 27 in Figure 2 of Smith to the compressor recited in claim 5. Smith teaches that the system includes a scrubbing/recovery unit 28 connected to a vacuum pump 27 (*see* Smith, Column 5, Lines 4-9). Clearly Item 27 is not a compressor, in contrast to what is alleged in the Office Action (*see* Office Action, Page 7, Line 17).

Furthermore, Applicant respectfully submits that the scrubbing/recovery unit 28 of Smith can not be equated to, and does not render obvious, the compressor recited in claim 5. Smith expressively teaches that the recovery unit 28 may comprise “one (or more) of a membrane separation unit, a pressure (or vacuum) swing separation unit or a selective cryogenic separation unit [that are] all generally known per se and not of specific relevance to this invention” (*see* Smith, Column 6, Lines 8-12). Such a membrane separation unit, a pressure (or vacuum) swing separation unit or cryogenic separation unit are subject matters different from compressors, as recited in claim 5.

Applicant respectfully requests withdrawal of the sections 102 and 103 rejections over Smith in view of the above reasons and cancellation of claim 6. If the Examiner continuous to rely on Smith to make the rejections, Applicant hereby respectfully requests the Examiner

to provide adequate evidence to support the finding of the above traversed factual assertion. MPEP § 2144.03(C).

E. Claim Rejections Under 35 U.S.C. § 103 Over Akutsu, Conrad, Gebele In View Of Maruyama, Puech or Smith Should Be Withdrawn

Claims 4, 9 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akutsu, Conrad or Gebele in view of Maruyama, Puech or Smith.

As explained above, none of Gebele, Akutsu, Conrad or Smith disclose, teach, or suggest a compressor connected to a discharge port of a last-stage vacuum pump of an at least one-stage vacuum pump (e.g., the second or third vacuum pump) without divergence, as recited in the independent claims 1, 5, 7 and 10. Maruyama and Puech are cited for disclosing other features recited in the dependent claims, but fail to cure the deficiencies of Gebele, Akutsu, Conrad and Smith.

Claims 4, 9, 12 depend from one or more of claims 1, 7 and 10, and thus are patentable for at least the same reasons as the base claims thereof.

F. None Of the Prior Art Discloses, Teaches Or Suggests That “During Operation The Last-Stage Vacuum Pump Has An Inlet Pressure Of 10 Torr Or Less,” As Recited In The Independent Claims.

Additionally, independent claim 1 is amended to further recite that during operation the last-stage vacuum pump has an inlet pressure of 10 Torr or less. Such claimed features reduce the power consumption of the last-stage vacuum pump as compared with conventional apparatus (*see* Specification, Paragraph [0023]). For example, as shown in Figure 3, “a screw pump having the compressor is reduced in power consumption by approximately 50% as compared with a screw pump having no compressor connected” (*see* Specification, Paragraph [0052]).

In contrast, none of the prior art disclose, teach or suggest that “during operation the last-stage vacuum pump has an inlet pressure of 10 Torr or less,” as recited in claim 1.

Other independent claims and the dependent claims recite analogous features, and thus are patentable for at least the same reasons explained above.

IV. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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